Log Event A

Borehole 50-08-19

Borehole Information

Farm :	T	**Tank :**	T-108	**Site Number :**	299-W10-178
N-Coord :	43,408	**W-Coord :**	75,759	**TOC Elevation :**	Unknown
Water Level, ft :	84.2	**Date Drilled :**	8/31/1979		

Casing Record

Type :	Steel-welded	Thickness, in. :	0.280	ID, in. :	6
Top Depth, ft. :	0	Bottom Depth, ft. :	90		

Cement Bottom, ft. : 20 **Cement Top, ft. :** 0

Borehole Notes:

Borehole 50-08-19 was drilled in July and August 1979 using a cable-tool drilling rig. The borehole was drilled to a depth of 103 ft and completed to a depth of 100 ft with 6-in.-diameter casing. Thirty-six gal of grout were placed around the upper 20 ft of the borehole casing and a plug of 18 gal of grout was placed in the bottom of the borehole from 90 to 95 ft.

The casing thickness is assumed to be 0.280 in., on the basis of the published thickness for 6-in., schedule-40 steel casing, which was the standard casing used at the Hanford Site in the 1970s.

The top of the casing, which is the zero reference for the SGLS, is approximately even with the ground surface.

Equipment Information

Logging System :	1B	**Detector Type :**	HPGe	**Detector Efficiency:**	35.0 %
Calibration Date :	10/1997	**Calibration Reference :**	GJO-HAN-14	**Logging Procedure :**	MAC-VZCP 1.7.10-1

Logging Information

Log Run Number :	1	**Log Run Date :**	05/11/1998	**Logging Engineer:**	Alan Pearson
Start Depth, ft.:	0.0	**Counting Time, sec.:**	200	**L/R :** L **Shield :**	N
Finish Depth, ft. :	14.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

Log Run Number :	2	**Log Run Date :**	05/12/1998	**Logging Engineer:**	Alan Pearson
Start Depth, ft.:	86.0	**Counting Time, sec.:**	200	**L/R :** L **Shield :**	N
Finish Depth, ft. :	24.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

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Log Run Number :	3	**Log Run Date :**	05/13/1998	**Logging Engineer:**	Alan Pearson
Start Depth, ft.:	25.0	**Counting Time, sec.:**	200	**L/R :** L	**Shield :** N
Finish Depth, ft. :	13.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

Logging Operation Notes:

Borehole 50-08-19 was logged in three runs. Logging began on May 11 and was completed on May 13, 1998. The total logging depth achieved by the SGLS was 86 ft. Spectra were collected at intervals of 0.5 ft using a 200-s counting time.

At the time of logging, there was water in borehole at a depth of 84.2 ft.

Analysis Information

Analyst : D.L. Parker

Data Processing Reference : MAC-VZCP 1.7.9 Analysis Date : 07/30/1998

Analysis Notes :

The pre-survey and post-survey field verification for each logging run met the acceptance criteria established for peak shape and system efficiency. The energy calibration and peak-shape calibration from the field verification spectrum that most closely matched the field data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra.

A casing correction factor for a 0.280-in.-thick steel casing was applied to the concentration data during the analysis process.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A plot of the shape factor analysis results is included. The plot is used as an interpretive tool to help determine the radial distribution of man-made contaminants around the borehole.

A time-sequence plot of selected gross gamma logs from 1979 to 1993 is included. Another plot of the peak historical gross gamma activity recorded in the borehole at a depth of about 65 ft from 1979 to 1994 is also included. The graph compares the calculated decay of Ru-106 to the decay in gross gamma activity.

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Results/Interpretations:

The man-made radionuclides Cs-137 and Co-60 were detected with the SGLS in this borehole. The Cs-137 contamination was detected almost continuously from the ground surface to a depth of about 3 ft and at 8 and 11.5 ft. The maximum apparent Cs-137 concentration of 0.2 pCi/g was measured at a depth of 3 ft.

Co-60 contamination was detected almost continuously from 68 to 86 ft. The maximum apparent Co-60 concentration was recorded as 8.4 pCi/g at 72 ft.